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A.D. 1888, *7th March.* N° 3511.

PROVISIONAL SPECIFICATION.

Improvements in Mixtures or Curatives Applicable for the Destruction of the Baccilli or Microbes of Consumption and other Diseases or Virulent Ailments, and in Apparatus for Producing and Applying said Curatives.

We, William Henry Davies, of 42, Irvine Street, Liverpool, Pianoforte manufacturer, and George Brighouse, Rose Cottage, Dryden Road, Liverpool, Gentleman, both in the County of Lancaster, do hereby declare the nature of this invention to be as follows :—

As a result of many years experimenting we have discovered that the combined use of phenol (or to a certain extent other members of the same chemical series) and ozone destroys the baccillus of consumption or phthisis and also other baccilli such as those of snake-bite and some zymotic diseases and blood poisoning.

To apply this curative, however, to the best advantage the ozone and phenol ought to be mixed in definite proportions and this is an exceedingly difficult thing to do in a sick room, as the one is a liquid or vapour, and the other a pure gas.

Our invention therefore is 1st.—For the actual compound or mixture. 2nd.—For a method of making and combining the same and 3rd.—The apparatus therefor.

In carrying out our invention we condense the oxygen to the greatest practical extent in tubes. The phenol or other member of the series is preferably placed in a vessel having an exit orifice surrounding the exit orifice of the gas. Either through the oxygen tube itself or through a second chamber added to the tube between it and the orifice we fix two electrodes and cause an electric spark or current of high tensional electricity to pass between the two electrodes through the oxygen. By this means the oxygen is in part converted into ozone as it slowly passes the line of march of the electricity.

When the mixture or compound has to be sprayed into the room, the two cocks one from the phenol receptacle, the other from the ozone reservoir are turned

[*Price 8d.*]

simultaneously. This is best done by an adjustable lever uniting the two cocks, adjustable so that the respective amounts can be exactly regulated. The oxygen or ozone at once sprays the phenol in an intensely fine spray into the atmosphere along with its mixing it completely and converting it into vapour, this is inhaled by the patient.

Dated this 6th day of March 1888.

WM. P. THOMPSON & Co.,
Of 6, Lord Street, Liverpool,
Patent Agents for the Applicants.

COMPLETE SPECIFICATION.

Improvements in Mixtures or Curatives Applicable for the Destruction of the Baccilli or Microbes of Consumption and other Diseases or Virulent Ailments, and in Apparatus for Producing and Applying said Curatives.

We, William Henry Davies, of 42, Irvine Street, Liverpool, Pianoforte manufacturer, and George Brighouse, Rose Cottage, Dryden Road, Liverpool, Gentleman, both in the County of Lancaster, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

As a result of many years experimenting, we have discovered that the combined use of phenol (or to a certain extent other members of the same chemical series) and ozone, destroys the baccillus of consumption and phthisis and also other baccilli such as those of snake-bite, and some zymotic diseases and blood poisoning.

To apply this curative, however, to the best advantage the ozone and phenol ought to be mixed in definite proportions and this is an exceedingly difficult thing to do in a sick room, as the one is a liquid or vapour and the other a pure gas.

Our invention therefore is 1st. For the actual compound or mixture. 2nd. For a method of preparing and mixing the same, and 3rd. For the apparatus for preparing mixing and applying the same.

The mixture is formed of ozone and phenol (or other volatile member of the same chemical series) and preferably in the following proportions,

Ozone 97 to 99.75 parts.
Phenol .25 to 3 parts.

The exact proportions will depend greatly upon the nature of the disease and the state of the patient.

The method of and apparatus for preparing and combining the mixture, and the apparatus for applying the same, may be understood by reference to the accompanying drawings, in which,

Figure 1 is sectional view of an arrangement for preparing the ozone.

Figure 2 is a sectional view of a device for combining the phenol and ozone and for applying the same to a sick room by dispersion.

Figure 3 shows an apparatus for combining the phenol and ozone, and for applying the resultant mixture to a patient by inhalation.

In preparing the ozone, the oxygen is passed slowly from one suitable chamber or reservoir to another and on its way thither it is led through or past an electric spark or a current of high tensional electricity, which partly converts the oxygen into ozone. One convenient form of ozonizer is shown in figure 1, in which A is a glass or earthenware tube, through which the oxygen is caused to pass. Within this tube two electrodes are placed a short distance apart, and formed preferably of two opposing platinum brushes B. Their conducting wires *b* are led through hermetically sealed holes in the tube A. In preparing the ozone on a large scale, two floating chambers or reservoirs somewhat in the form of small gasholders may be employed, one connected to each end of the tube A, for holding the oxygen and ozone respectively. For supplying the ozone in retail quantities it is condensed to the greatest practical extent in tubes or bottles, preferably in the iron or steel bottles usually employed for storing oxygen. Or the oxygen itself might be supplied in the condensed state in the tubes or bottles in which case a small electrical apparatus would be necessary for ozonizing it as required.

The phenol or other member of the series is preferably employed in the liquid state when applied with a disperser, but in the state of vapour when applied with an inhaler.

When the mixture is to be applied by dispersion, the phenol and ozone are placed in two separate reservoirs or in two separate compartments of the same reservoir. The exit orifices of these reservoirs or compartments are preferably arranged as shown in figure 2, the phenol exit orifice C surrounding the ozone exit orifice D, and both being preferably tapered and terminating at or about the same point as shown. Each of the orifices may be provided with a regulating cock such as *c d*. The ozone reservoir may be provided with an arrangement (mechanical or otherwise) for producing a pressure upon the surface of the ozone, or the pressure of the condensed gas itself may be utilized for the purpose of dispersion. The cocks *c* and *d* being opened the ozone issues in a fine jet at the orifice D, and by lateral induction it draws the phenol to the outer edge of its orifice. At this point the phenol is caught up by the ozone jet and sprayed into the atmosphere in an intensely fine spray. The phenol and ozone are thus thoroughly mixed, and the former being in a finely divided state, it is converted into vapour, which may be inhaled by the patient. The relative proportions of the ozone and phenol in the mixture may be regulated by the cocks *c* and *d*, and these may, if desired, be connected with an adjustable lever or levers, in such a manner that they may be turned simultaneously, and may yet be adjusted independently of each other.

When the mixture is to be applied directly by inhalation, an apparatus such as shown in figure 3 may be conveniently employed. E is a closed reservoir containing the liquid phenol *e*. D^1 is a tube dipping down into the phenol and communicating on the outside of the reservoir E with an ozone reservoir F. C^1 is a tube passing out at the top of the phenol reservoir and provided with a mouthpiece C^2 and a regulating cock C^3, the lower end of the tube C^1 being situated at some point above the level of the liquid phenol *e* as shown. The ozone reservoir F is shown collapsible and it may if desired be provided with a spring or weight to produce the requisite pressure upon the gas. *f* is a cock for controlling the ozone exit, and f^1, f^2 are respectively a cock and union which are employed in filling the reservoir. The cock *f* being opened to the desired extent, the ozone issues from the lower end of the tube D^1, passes through the liquid phenol *e* and mixes with the phenol vapour in the upper part of the reservoir E. The mouth piece C^2 being now applied to the mouth of the patient, the latter is enabled to inhale the mixture by opening the cock C^3 to the desired extent, the exact proportions of phenol and ozone being regulated by the cock *f* and by the strength of the liquid phenol *e*.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. As a curative, applicable for the destruction of baccilli, microbes or the like, the herein described mixture of ozone and phenol (or other volatile member of the phenol series), combined substantially in the proportions and in the manner set forth.
2. The method of obtaining a mixture of ozone and an antiseptic or germicide which consists in passing a stream of electricity or series of electric sparks through a current of oxygen, and causing that oxygen to debouch at the aperture of a stream of the germicide or antiseptic so that the two are sprayed in a fine state of division over the apartment.
3. The apparatus applicable for making, spraying and for inhaling a mixture of phenol and ozonised oxygen, substantially as described.

Dated this 6th day of November 1888.

WM. P. THOMPSON & Co.,
Of 6, Lord Street, Liverpool,
Patent Agents for the Applicants.

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(1 SHEET)

FIG. 1.

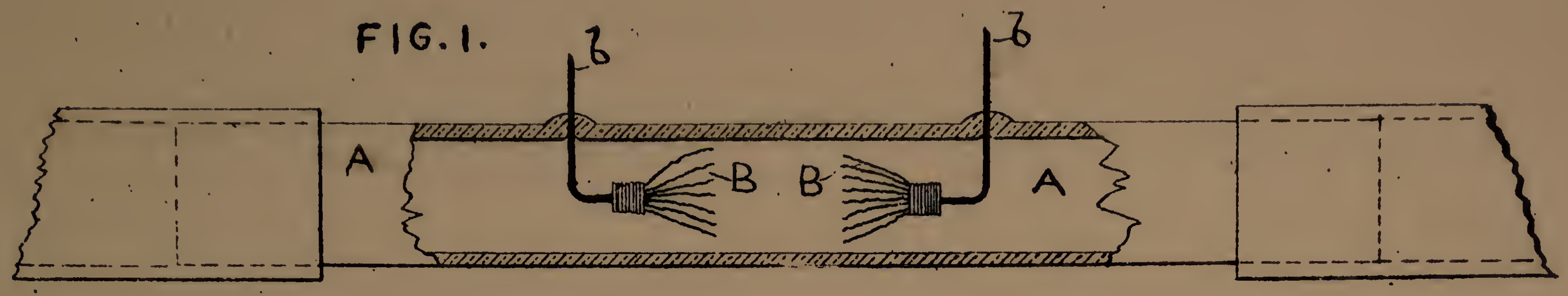


FIG. 2.

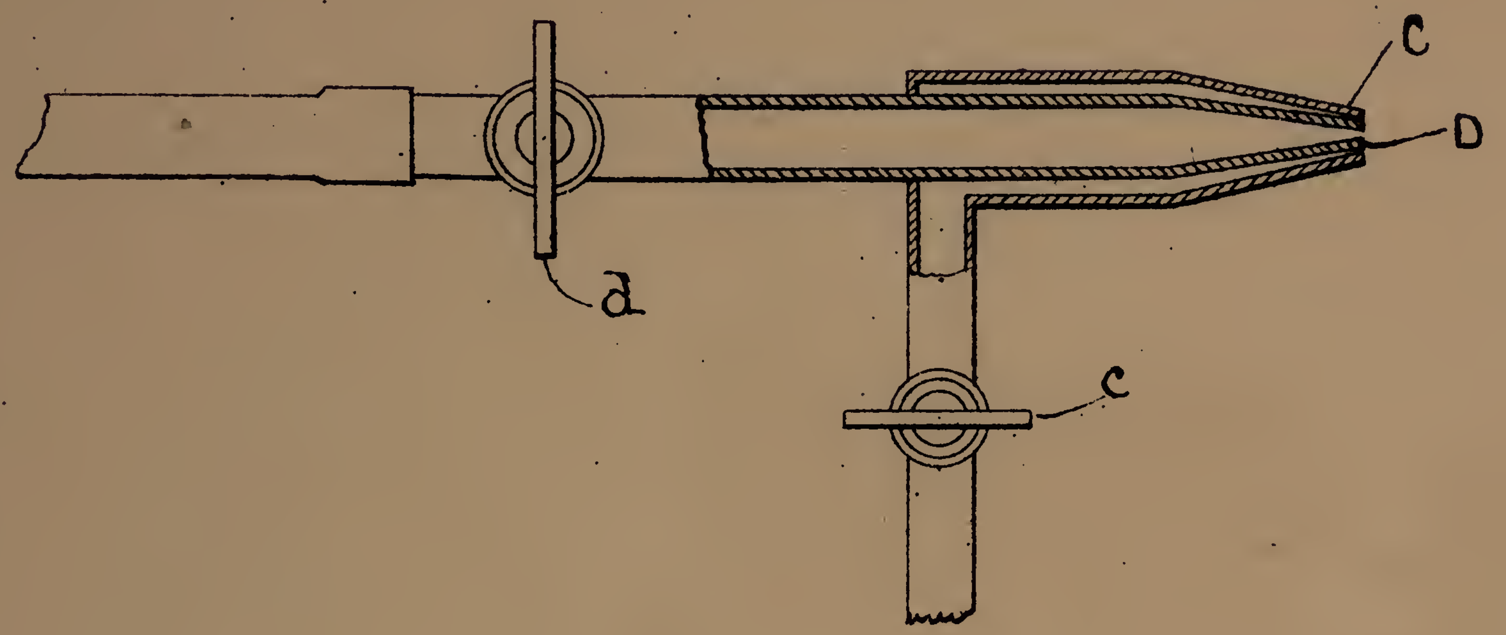
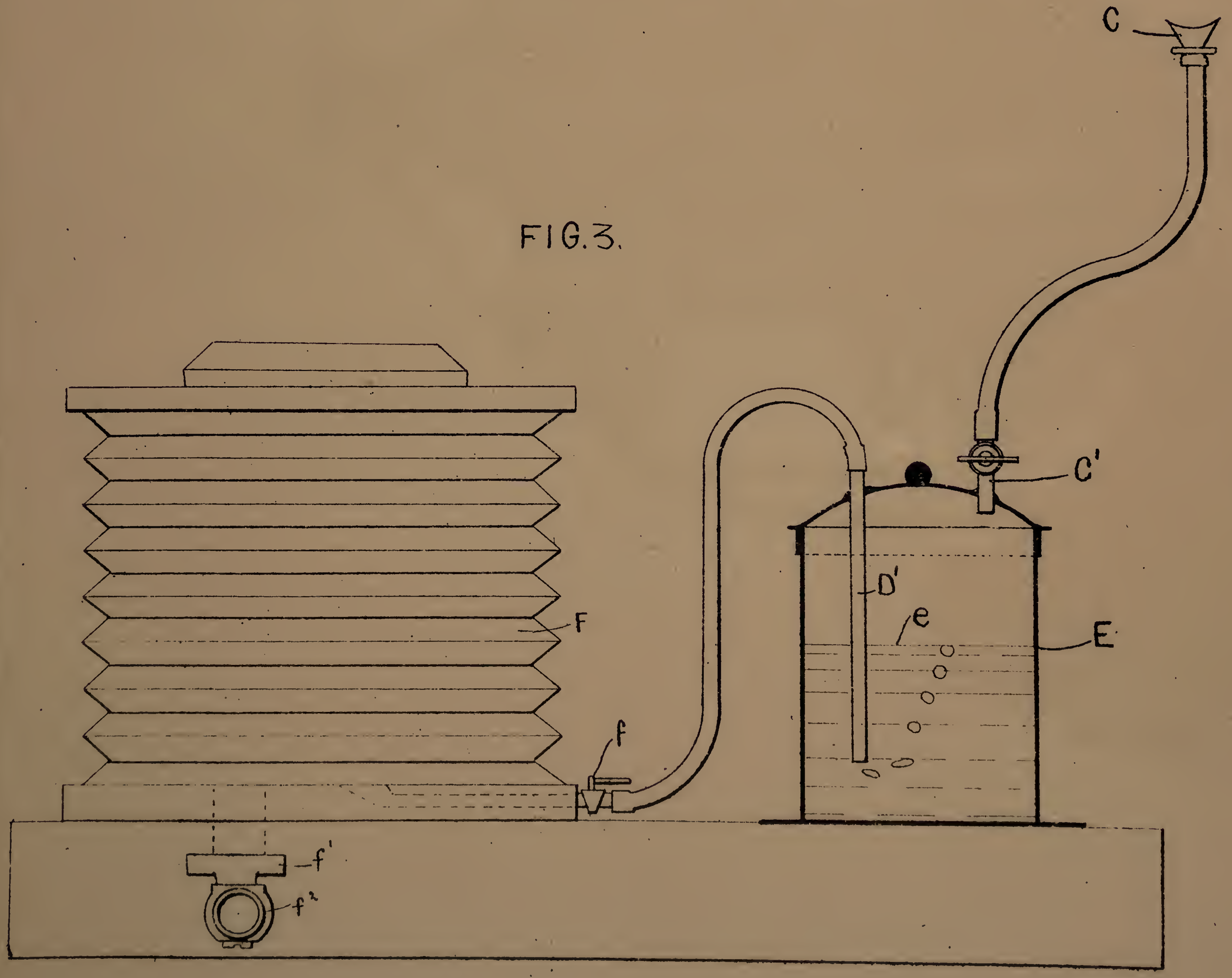


FIG. 3.



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